REMARKS

Applicants respectfully request that the foregoing amendments be made prior to examination of the present application.

The specification is being amended to insert proper headings.

Please delete the present Abstract and replace it with the Abstract attached to this amendment. The Abstract is being amended in order to be in compliance with 37 C.F.R. §1.72.

Claims 23, 31, and 35 are requested to be cancelled.

Claims 1, 3-4, 6, 13-14, 17-20, 22, 26, 30, 34, 36-46, 50-51, and 53 are currently being amended.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. After amending the claims as set forth above, claims 1 – 22, 24 – 30, 32 – 34, and 36 - 56 are now pending in this application.

Applicant believes that the present application is now in condition for allowance. Favorable consideration of the application as amended is respectfully requested.

Respectfully submitted,

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Abstract

Nucleic acid molecules encoding an ATP-gated ion channel P2X7R which contains a mutation or a deletion are disclosed. Polypeptides encoded by the nucleic acid molecules and antibodies that specifically are directed to these polypeptides are disclosed. Aptamers that specifically bind the nucleic acid molecules, and primers for selectively amplifying the nucleic acid molecules are provided, kits, compositions, particularly pharmaceutical and diagnostic compositions comprising the nucleic acid molecules, vectors, polypeptides, aptamers, antibodies and/or primers, are provided. Methods for diagnosing affective disorders associated with a non-functional P2X7R protein, an altered ATP-gating of the P2X7R protein, an over- or underexpression of the P2X7R protein or associated with the presence of any one of the nucleic acid molecules or polypeptides encoded thereby are disclosed. Additionally, the present invention relates to uses and methods for treating affective disorders employing a functional or non-functional ATP-gated ion-channel P2X7R, such as treatment with modulators of P2X7R activity.